

## **Exhibit 1**

*Hawley's*  
**Condensed Chemical  
Dictionary**

*Fourteenth Edition*

Revised by  
**Richard J. Lewis, Sr.**



JOHN WILEY & SONS, INC.

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Published simultaneously in Canada.

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*Library of Congress Cataloging-in-Publication Data:*

Condensed chemical dictionary.

Hawley's condensed chemical dictionary.—14th ed./ rev. by Richard J. Lewis, Sr. p. cm.

Includes index.

ISBN 0-471-38735-5 (cloth: acid-free paper)

I. Chemistry—Dictionaries. I. Title: Condensed chemical dictionary. II Hawley, Gessner Goodrich, 1905– III. Lewis, Richard J., Sr. IV. Title.

QD5 C5 2002

540".3--dc21

2001045614

Printed in the United States of America.

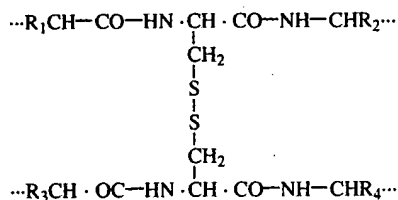
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**Hazard:** A carcinogen. Toxic by ingestion, inhalation, and skin absorption. Manufacture and use have been prohibited.

**Use:** Insecticide, fungicide.

**keratin.** A class of natural fibrous proteins occurring in vertebrate animals and humans, they are characterized by their high content of several amino acids, especially cystine, arginine, and serine. They are generally harder than the fibrous collagen group of proteins. The softer keratins are components of the external layers of skin, wool, hair, and feathers, while the harder types predominate in such structures as nails, claws, and hoofs. The hardness is largely due to the extent of cross-linking by the disulfide bonds of cystine by the mechanism shown below:



Keratins are insoluble in organic solvents but do absorb and hold water. The molecules contain both acidic and basic groups and are thus amphoteric.

**Use:** Tablet coatings that dissolve only in the intestines, foam extinguishers, protein hydrolyzates.

**keratinase.** A water-soluble, proteolytic enzyme having the ability to digest the keratin in wool and other forms of hair, converting a portion of it to a water-soluble form. It thus acts as a depilatory and is used in removing hair from pelts and hides, as well as from human skin. It is inactivated by heating to 100C.

**"Kerlone" [Searle].** TM for betaxolol hydrochloride.

**Use:** Drug.

**kernite.**  $Na_2B_4O_7 \cdot 4H_2O$ . A natural sodium borate found in Kern County, California.

**Properties:** Colorless to white, two good cleavages, luster vitreous to pearly. Mohs hardness 3, d 1.95. Noncombustible.

**Use:** Major source of borax and boron compounds.

**kerogen.** The organic component of oil shale, it is a bitumen-like solid whose approximate composition is 75-80% carbon, 10% hydrogen, 2.5% nitrogen, 1% sulfur, and the balance oxygen. It is a mixture of aliphatic and aromatic compounds of humic and algal origin and comprises a substantial proportion of the shale; after fractionating and refining, the oil is reported to yield 18% gasoline, 30% kerosene, 27% gas oil, 15% light lube oil, and 10% heavy lube oil.

**kerosene.** (kerosine).

CAS: 8008-20-6.

**Properties:** Water-white, oily liquid; strong odor. D 0.81, boiling range 180-300C, flash p 100-150F (37.7-65.5C), autoign temp 444F (228C). Combustion properties can be greatly improved by a proprietary hydrotreating process involving a selective catalyst.

**Derivation:** Distilled from petroleum.

**Hazard:** Moderate fire risk, explosive limits in air 0.7-5.0%. Toxic by inhalation.

**Use:** Rocket and jet engine fuel, domestic heating, solvent, insecticidal sprays, diesel and tractor fuels.

**ketal.** Organic compound produced by addition of an alcohol to a ketone. Analogous to acetal. See hemiketal.

**ketene.**

CAS: 463-51-4.  $H_2C=C=O$ .

**Properties:** Colorless gas; disagreeable odor. Readily polymerizes; cannot be shipped or stored in a gaseous state. Mp -151C, bp -56C.

**Derivation:** Pyrolysis of acetone or acetic acid by passing its vapor through a tube at 500-600C.

**Hazard:** Toxic by inhalation, strong irritant to skin and mucous membranes. TLV: TWA 0.5 ppm; STEL 1.5 ppm.

**Use:** Acetylating agent, generally reacting with compounds having an active hydrogen atom; reacts with ammonia to give acetamide. Starting point for making various commercially important products, especially acetic anhydride and acetate esters.

**ketimine.** A type or class of curing agent for epoxy resins that makes it possible to use very-high-solids content coatings in spray equipment. Reacts with epoxies very slowly and thus delays curing time, which prevents setting up of the resin during spraying operation. In presence of water or water vapor, ketimine breaks down to a polyamine and a ketone. Epoxy coatings cured with ketimine should not exceed a thickness of 10 mils.

**4-ketobenzotriazine.** (benzazimide; 4-keto-(3H)-1,2,3-benzotriazine).  $C_7H_5N_3O$  Bicyclic.

**Properties:** Tan powder. Mp 210C (decomposes). Soluble in alkaline solutions and organic bases.

**Use:** Organic synthesis.

**keto-enol tauterism.** A compound with isomers in equilibrium between the keto form  $-CH_2-CO-$  and the enol form  $-CH=C(OH)-$ . It occurs by migration of a hydrogen atom between a carbon atom and the oxygen on an adjacent carbon. See isomerization.

**$\alpha$ -ketoglutaric acid.** (2-oxopentanedioic acid).  $HOOCCH_2CH_2COCOHO$ .

**Properties:** Mp 113.5C. Soluble in water and alcohol. Important in amino-acid metabolism.